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Invited Talk

ASESSING THE AIR POLLUTION DISTRIBUTION IN A BUSY STREET OF COPENHAGEN IN THE FURTHER DEVELOPMENT OF A STREET POLLUTON MODEL

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Abstract

The EU Air Quality Directive requires Member States to perform Air Quality Monitoring in order to assess ambient air quality for compliance checking with air quality limit values (http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:152:0001:0044:en:PDF). This monitoring needs to include areas with the highest concentrations to which the population is exposed, but also areas which are representative for the exposure of the general population; in both cases for the protection of human health as well as for protecting biodiversity in ecosystems. The current project aims at obtaining a detailed dataset for the spatial air pollution distribution in a very busy street, H.C. Andersens Boulevard in Copenhagen; a street where a monitoring site has already been in place for many years. The dataset will be established for the further development of the Operational Street Pollution Model (OSPM) developed at AU; the revised version OSPM includes new features like inhomogeneous distribution of the traffic on different lanes, slope of the street etc (see e.g. Ottosen et al. (2015)). An additional goal for the project is to explore the applicability of low-cost electrochemical sensors for describing pollution distributions in busy streets. The focus of the project is on nitrogen dioxide (NO_2) for which concentrations in recent years have been exceeding EU limit values. The EU limit values have been exceeded since a change of lanes in the street moved traffic closer to the monitoring station. In order to get more detailed information about the traffic flow and its diurnal pattern, manual traffic counts have been performed over 24 hours. In addition a video camera has been installed on the roof of a building next to the street during the monitoring campaign. Measurements are carried out using passive samplers from Radiello (http://www.radiello.com/english/index_en.html) for weekly measurements and devices based on electrochemical sensors from Alphasense (http://www.alphasense.com/) with high temporal resolution. Data from the devices based on electrochemical sensors and the passive samplers will be carefully compared with high quality data obtained from the existing monitoring station (which is also operated by AU).

References

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